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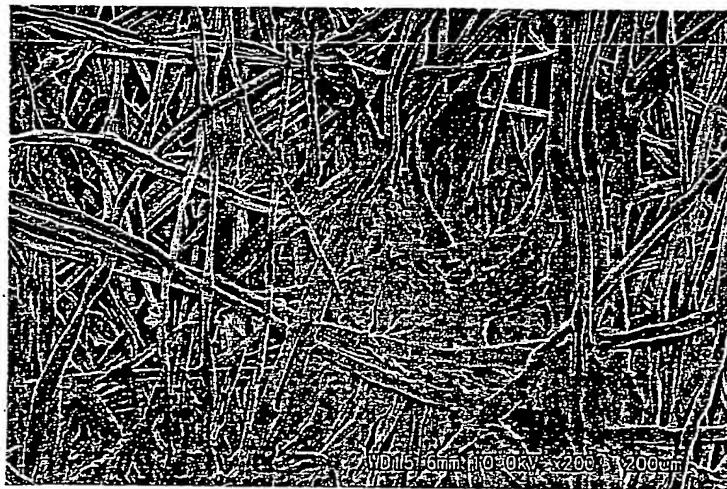
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(54) Title: SEPARATOR FOR ORGANIC ELECTROLYTE BATTERY, PROCESS FOR PRODUCING THE SAME AND ORGANIC ELECTROLYTE BATTERY INCLUDING THE SEPARATOR

(54) 発明の名称: 有機電解液電池用セパレータとその製造方法及びこれを組み込んだ有機電解液電池



(57) Abstract: A separator for organic electrolyte battery, comprising a wet heat gelling resin capable of gelling upon being heated in the presence of moisture and a nonwoven fabric comprising fibers other than those capable of wet heat gelling, wherein the other fibers are fixed by a gel resulting from wet heat gelling of the wet heat gelling resin and wherein the average pore diameter, as measured in accordance with ASTM F 316 86, of the nonwoven fabric is in the range of 0.3 to 5  $\mu$ m while the maximum pore diameter thereof is in the range of 3 to 20  $\mu$ m. Thus, the wet heat gelling resin enables fixing the other fibers constituting the nonwoven fabric and enables obtaining desired average pore diameter and maximum pore diameter. An organic electrolyte battery of high safety, minimized short-circuiting and high battery performance can be provided thereby.

(57) 要約: 本発明の有機電解液電池用セパレータは、水分存在下で加熱することによってゲル化し得る湿熱ゲル化樹脂と、他の繊維を含む不織布で構成され、前記他の繊維は前記湿熱ゲル化樹脂が湿熱ゲル化したゲル化物で固定されており、ASTM F 31686に

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(81) 指定国 (国内): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) 指定国 (広域): ARIPO 特許 (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), ユーラシア特許 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), ヨーロッパ特許 (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI 特許 (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

添付公開書類:

- 国際調査報告書
- 補正書・説明書

2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/JP03/13520

A. CLASSIFICATION OF SUBJECT MATTER  
Int.Cl.<sup>7</sup> H01M2/16, D21H13/16

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
Int.Cl.<sup>7</sup> H01M2/16, D21H13/16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Jitsuyo Shinan Koho 1926-1996 Toroku Jitsuyo Shinan Koho 1994-2003  
Kokai Jitsuyo Shinan Koho 1971-2003 Jitsuyo Shinan Toroku Koho 1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2002-134088 A (Daiwabo Co., Ltd.), 10 May, 2002 (10.05.02), Claims 1 to 11; examples (Family: none)	1-32
X	JP 2002-203530 A (Daiwabo Co., Ltd.), 19 July, 2002 (19.07.02), Claims 1 to 9; examples (Family: none)	1-32

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 26 January, 2004 (26.01.04)	Date of mailing of the international search report 17 February, 2004 (17.02.04)
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Facsimile No.	Telephone No.